

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 7956-011-228	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US96/14730	International filing date (<i>day/month/year</i>) 13 SEPTEMBER 1996	(Earliest) Priority Date (<i>day/month/year</i>) 14 SEPTEMBER 1995
Applicant Virginia Tech Intellectual Property, Inc.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (See Box I).
2. ☒ Unity of invention is lacking (See Box II).
3. ☐ The international application contains disclosure of a nucleotide and/or amino acid sequence listing and the international search was carried out on the basis of the sequence listing
 - ☐ filed with the international application.
 - ☐ furnished by the applicant separately from the international application,
 - ☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.
 - ☐ transcribed by this Authority.
4. With regard to the title, ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:
5. With regard to the abstract,
 - ☒ the text is approved as submitted by the applicant.
 - ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. The figure of the drawings to be published with the abstract is:
Figure No. _____
 - ☐ as suggested by the applicant.
 - ☐ because the applicant failed to suggest a figure.
 - ☐ because this figure better characterizes the invention.☒ None of the figures.

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US96/14730

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : Please See Extra Sheet.

US CL : 435/69.1, 240.1, 320.1; 530/350; 800/205

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/69.1, 240.1, 320.1; 530/350; 800/205

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 5,422,108 A (MIRKOV et al.) 06 June 1995, column 3, line 66 to column 4, line 5; column 9, lines 60-68; column 14, lines 50-67; and column 20, lines 45-51.	1, 7, 8, 10, 11, 25, 26, 31, 32 ----- 1-6, 8-9, 11-21, 27-30, 32-35, 39-46
X ----- Y	US 5,349,122 A (HAIN et al.) 20 September 1994, column 4, lines 6-23; and column 6, line 53 to column 7, line 61.	10, 11, 25, 26, 31 ----- 14-21, 32-35, 39-46

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X*	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
E earlier document published on or after the international filing date	*Y*	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*&*	document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means		
P document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

12 NOVEMBER 1996

Date of mailing of the international search report

02 DEC 1996

Name and mailing address of the ISA/US
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	THORNBURG et al. Wound-inducible expression of a potato inhibitor II-chloramphenicol acetyltransferase gene fusion in transgenic tobacco plants. Proc. Natl. Acad. Sci. USA. February 1987, Vol. 84, No. 3, pages 744-748, especially page 746, Figure 2.	2, 3, 11, 12, 27, 40
Y	PARK et al. Structure and nucleotide sequence of tomato HMG2 encoding 3-hydroxy-3-methyl-glutaryl coenzyme A reductase. Plant Molecular Biology. October 1992, Vol. 20, No. 2, pages 327-331, especially pages 328-329, Figure 1.	2-4,8-9, 11-13, 27, 28, 40, 41
Y	WO 93/24630 (LILLEY et al.) 09 December 1993, page 6, line 8 to page 7, line 32; page 17, lines 3-18.	5, 6, 14, 15, 29, 30, 42, 43
X -----	SORGE et al. Molecular cloning and nucleotide sequence of human glucocerebrosidase cDNA. Proc. Natl. Acad. Sci. USA, Vol. 82, No. 21, pages 7389-7293, especially page 7291, Figure 2.	39-46 -----
Y		8-9, 16-21, 32-35 39-46
X -----	SCOTT et al. Structure and sequence of the human alpha-L-iduronidase gene. Genomics. August 1992, Vol. 13, No. 4, pages 1311-1313, especially page 1312.	39-46 -----
Y		8-9, 16-21, 32-33, 39-46

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US96/14730

A. CLASSIFICATION OF SUBJECT MATTER:

IPC (6):

C12P 21/06; C12N 5/04, 15/63; C07K 14/00; A01H 1/00, 5/02, 5/04, 5/06, 5/10, 5/12

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

MPSEARCH (for SEQ ID NO:5 and 10), APS, BIOSIS, MEDLINE, WPIDS

search terms: transgenic plants, lysozyme, lysosomal, glucocerebrosidase, iduronidase